WHAT IS CLAIMED IS:

1. A pressure sensor, comprising:

a housing having an interior chamber;

a diaphragm sealing the interior chamber;

a deformable first measuring element coupled to the diaphragm; and

an arrangement coupled to the first measuring element, the arrangement being configured to generate a signal in response to a deformation of the diaphragm and to generate a signal in response to a deformation of the first measuring element.

2. The pressure sensor according to claim 1, wherein the first measuring element includes a bendable bar having one end freely suspended.

3. The pressure sensor according to claim 1, further comprising a stop element, the stop element being configured to oppose a deformation force in response to a predetermined deformation of the first measuring element.

4. The pressure sensor according to claim 3, wherein the stop element includes a flexible second measuring element, the second measuring element being one of harder and flexurally stiffer than the first measuring element.

5. The pressure sensor according to claim 3, wherein the stop element includes one of a half-open diaphragm and a bendable bar having one end freely suspended.

6. The pressure sensor according to claim 3, wherein at least one of the first measuring element and the stop element includes at least one piezoelectric element.

7. The pressure sensor according to claim 1, wherein the arrangement includes a piezoresistor connected to a Wheatstone bridge.

8. The pressure sensor according to claim 3, further comprising a transmission element configured to transmit force from the diaphragm to at least one of the first measuring element and the stop element.

9. The pressure sensor according to claim 8, wherein the transmission element includes one of a selected elasticity and a selected flexural stiffness, one of a measuring range and measuring ranges of the pressure sensor being determined in accordance with the one of the selected elasticity and the selected flexural stiffness.

10. The pressure sensor according to claim 8, wherein the transmission element includes at least one of a diaphragm and a chip, the at least one of the diaphragm and the chip having a thickness, one of a measuring range and measuring ranges of the pressure sensor being determined in accordance with the thickness.

11. The pressure sensor according to claim 3, wherein at least one of the first measuring element and the stop element includes one of a bar and a tongue disposed in a chip.

12. The pressure sensor according to claim 11, wherein the chip is a single chip.

13. The pressure sensor according to claim 1, wherein the pressure sensor is configured to measure at least two measuring ranges.

14. The pressure sensor according to claim 13, wherein a first measuring range of the at least two measuring ranges is 0 to 10 bar and a second measuring range of the at least two measuring ranges is 0 to 300 bar.

15. The pressure sensor according to claim 14, wherein the first measuring range is 0 to 2 bar.

16. The pressure sensor according to claim 14, wherein the second measuring range is 0 to 200 bar.

17. The pressure sensor according to claim 15, wherein the second measuring range is 0 to 200 bar.

18. The pressure sensor according to claim 1, further comprising an overload protection device.

19. The pressure sensor according to claim 18, wherein the overload protection device is configured to provide overload protection at approximately 300 bar.

20. The pressure sensor according to claim 18, wherein the overload protection device is configured to provide overload protection at approximately 250 bar.

21. The pressure sensor according to claim 1, wherein the diaphragm is formed of steel.

22. The pressure sensor according to claim 8, wherein at least one of the diaphragm, the transmission element, the first measuring element and the stop element includes an aiming-off allowance, the aiming-off allowance being configured to compensate for manufacturing tolerances during coupling;

and wherein the diaphragm is slightly curved to an outside in accordance with the aiming-off allowance.

23. A method for manufacturing a pressure sensor, comprising the steps of:

providing a housing having an interior chamber, the interior chamber being sealable by a diaphragm;

providing a support structure configured to support at least one first bendable measuring element on an upper side thereof;

inserting the support structure and the first bendable measuring element into the housing; and

sealing the interior chamber.

24. The method according to claim 23, further comprising the step of positioning at least one of a stop element and a second bendable measuring element on the support structure to oppose a deformation force one of at and above a predetermined force on the diaphragm.

25. The method according to claim 23, further comprising the step of providing an aiming-off allowance to compensate for manufacturing tolerances, wherein the diaphragm is pressed lightly in an outward direction.

26. The method according to claim 23, further comprising the step of fixing the support structure in place by one of a ring and a sleeve after the inserting step.

27. The method according to claim 23, further comprising the step of welding the diaphragm to the housing.

28. A method of using a pressure sensor, the pressure sensor including:

a housing having an interior chamber;

a diaphragm sealing the interior chamber;

a deformable first measuring element coupled to the diaphragm; and

an arrangement coupled to the first measuring element, the arrangement being configured to generate a signal in response to a deformation of the diaphragm and to generate a signal in response to a deformation of the first measuring element;

the method comprising the step of measuring a pressure in a combustion chamber of a combustion engine.

29. The method according to claim 28, wherein the first measuring element includes a bendable bar having one end freely suspended.

30. The method according to claim 28, wherein the pressure sensor includes a stop element being configured to oppose a deformation force in response to a predetermined deformation of the first measuring element.

31. The method according to claim 30, wherein the stop element includes a flexible second measuring element, the second measuring element being one of harder and flexurally stiffer than the first measuring element.

32. The method according to claim 30, wherein the stop element includes one of a half-open diaphragm and a bendable bar having one end freely suspended.

33. The method according to claim 30, wherein at least one of the first measuring element and the stop element includes at least one piezoelectric element.

34. The method according to claim 28, wherein the arrangement includes a piezoresistor connected to a Wheatstone bridge.

35. The method according to claim 30, wherein the pressure sensor includes a transmission element configured to transmit force from the diaphragm to at least one of the first measuring element and the stop element.

36. The method according to claim 35, wherein the transmission element includes one of a selected elasticity and a selected flexural stiffness, one of a measuring range and measuring ranges of the pressure sensor being determined in accordance with the one of the selected elasticity and the selected flexural stiffness.

37. The method according to claim 35, wherein the transmission element includes at least one of a diaphragm and a chip, the at least one of the diaphragm and the chip having a thickness, one of a measuring range and measuring ranges of the pressure sensor being determined in accordance with the thickness.

38. The method according to claim 30, wherein at least one of the first measuring element and the stop element includes one of a bar and a tongue disposed in a chip.

39. The method according to claim 38, wherein the chip is a single chip.

40. The method according to claim 28, wherein the pressure sensor is configured to measure at least two measuring ranges.

41. The method according to claim 40, wherein a first measuring range of the at least two measuring ranges is 0 to 10 bar and a second measuring range of the at least two measuring ranges is 0 to 300 bar.

42. The method according to claim 41, wherein the first measuring range is 0 to 2 bar.

43. The method according to claim 41, wherein the second measuring range is 0 to 200 bar.

44. The method according to claim 42, wherein the second measuring range is 0 to 200 bar.

45. The method according to claim 28, wherein the pressure sensor includes an overload protection device.

46. The method according to claim 45, wherein the overload protection device is configured to provide overload protection at approximately 300 bar.

47. The method according to claim 45, wherein the overload protection device is configured to provide overload protection at approximately 250 bar.

48. The method according to claim 28, wherein the diaphragm is formed of steel.

49. The method according to claim 35, wherein at least one of the diaphragm, the transmission element, the first measuring element and the stop element includes an aiming-off allowance, the aiming-off allowance being configured to compensate for manufacturing tolerances during coupling;

and wherein the diaphragm is slightly curved to an outside in accordance with the aiming-off allowance.

50. A combustion engine, comprising:

a combustion chamber; and

a pressure sensor configured to measure a pressure in the combustion chamber, the pressure sensor including:

a housing having an interior chamber;

a diaphragm sealing the interior chamber;

a deformable first measuring element coupled to the diaphragm; and

an arrangement coupled to the first measuring element, the arrangement being configured to generate a signal in response to a deformation of the diaphragm and to generate a signal in response to a deformation of the first measuring element.

51. The combustion engine according to claim 50, wherein the first measuring element includes a bendable bar having one end freely suspended.

52. The combustion engine according to claim 50, wherein the pressure sensor includes a stop element, the stop element being configured to oppose a deformation force in response to a predetermined deformation of the first measuring element.

53. The combustion engine according to claim 52, wherein the stop element includes a flexible second measuring element, the second measuring element being one of harder and flexurally stiffer than the first measuring element.

54. The combustion engine according to claim 52, wherein the stop element includes one of a half-open diaphragm and a bendable bar having one end freely suspended.

55. The combustion engine according to claim 52, wherein at least one of the first measuring element and the stop element includes at least one piezoelectric element.

56. The combustion engine according to claim 50, wherein the arrangement includes a piezoresistor connected to a Wheatstone bridge.

57. The combustion engine according to claim 52, wherein the pressure sensor includes a transmission element configured to transmit a force from the diaphragm to at least one of the first measuring element and the stop element.

58. The combustion engine according to claim 57, wherein the transmission element includes one of a selected elasticity and a selected flexural stiffness, one of a measuring range and measuring ranges of the pressure sensor being determined in accordance with the one of the selected elasticity and the selected flexural stiffness.

59. The combustion engine according to claim 57, wherein the transmission element includes at least one of a diaphragm and a chip, the at least one of the diaphragm and the chip

having a thickness, one of a measuring range and measuring ranges of the pressure sensor being determined in accordance with the thickness.

60. The combustion engine according to claim 52, wherein at least one of the first measuring element and the stop element includes one of a bar and a tongue disposed in a chip.

61. The combustion engine according to claim 60, wherein the chip is a single chip.

62. The combustion engine according to claim 50, wherein the pressure sensor is configured to measure at least two pressure ranges.

63. The combustion engine according to claim 62, wherein a first measuring range of the at least two measuring ranges is 0 to 10 bar and a second measuring range of the at least two measuring ranges is 0 to 300 bar.

64. The combustion engine according to claim 63, wherein the first measuring range is 0 to 2 bar.

65. The combustion engine according to claim 63, wherein the second measuring range is 0 to 200 bar.

66. The combustion engine according to claim 64, wherein the second measuring range is 0 to 200 bar.

67. The combustion engine according to claim 50, wherein the pressure sensor includes an overload protection device.

68. The combustion engine according to claim 67, wherein the overload protection device is configured to provide overload protection at approximately 300 bar.

69. The combustion engine according to claim 67, wherein the overload protection device is configured to provide overload protection at approximately 250 bar.

70. The combustion engine according to claim 50, wherein the diaphragm is formed of steel.

71. The combustion engine according to claim 57, wherein at least one of the diaphragm, the transmission element, the first measuring device and the stop element includes an aiming-off allowance, the aiming-off allowance being configured to compensate for manufacturing tolerances during coupling;

and wherein the diaphragm is slightly curved to an outside in accordance with the aiming-off allowance.